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TITLE: Polynucleotide separations on polymeric separation

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US-CL-CURRENT: 210/635; 210/198.2 ; 210/656 ; 435/6 ;
536/25.4

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PARENT-CASE:

CROSS REFERENCE TO RELATED CO-PENDING APPLICATIONS This is
a continuation of
Ser. No. 09/183,123, filed Oct. 30, 1998, now U.S. Pat.
No. 6,066,258,
which, in turn, is a continuation-in-part application of
U.S. patent
application Ser. No. 09/058,580 filed Apr. 10, 1998, now
abandoned which is
hereby incorporated by reference in its entirety. This
application is a
regular U.S. patent application under 35 U.S.C.
.sctn.111(a) and 35 C.F.R.
.sctn.1.53(b) and claims priority from the following
co-pending, commonly
assigned provisional applications, each filed under 35
U.S.C. .sctn.111(b):
Ser. No. 60/067,679, filed Dec. 5, 1997 Ser. No.
60/077,875, filed Mar.
13, 1998 Ser. No. 60/089,675 filed Jun. 17, 1998 Ser. No.
60/103,313, filed
Oct. 6, 1998.

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Detailed Description Text - DETX:

The molded polymeric rod of the present invention is

prepared by bulk free radical polymerization within the confines of a chromatographic column. The base polymer of the rod can be produced from a variety of polymerizable monomers. For example, the monolithic rod can be made from polymers, including mono- and di-vinyl substituted aromatic compounds such as styrene, substituted styrenes, alpha-substituted styrenes and divinylbenzene; acrylates and methacrylates; polyolefins such as polypropylene and polyethylene; polyesters; polyurethanes; polyamides; polycarbonates; and substituted polymers including fluorosubstituted ethylenes commonly known under the trademark TEFILON. The base polymer can also be mixtures of polymers, non-limiting examples of which include poly(glycidyl methacrylate-co-ethylene dimethacrylate), poly(styrene-divinylbenzene) and poly(ethylvinylbenzene-divinylbenzene. The rod can be unsubstituted or substituted with a substituent such as a hydrocarbon alkyl or an aryl group. The alkyl group optionally has 1 to 1,000,000 carbons inclusive in a straight or branched chain, and includes straight chained, branch chained, cyclic, saturated, unsaturated nonionic functional groups of various types including aldehyde, ketone, ester, ether, alkyl groups, and the like, and the aryl groups includes as monocyclic, bicyclic, and tricyclic aromatic hydrocarbon groups including phenyl, naphthyl, and the like. In a preferred embodiment, the alkyl group has 1-24 carbons. In a more preferred embodiment, the alkyl group has 1-8 carbons. The substitution can also contain hydroxy, cyano, nitro groups, or the like which are considered to be non-polar, reverse phase functional groups. Methods for hydrocarbon substitution are conventional and well-known in the art and are not an aspect of this invention.

The preparation of polymeric monoliths is by conventional

methods well known in
the art as described in the following references: Wang et
al. (J Chromatog. A
699:230 (1994)), Petro et al. (Ana. Chem. 68:315 (1996)),
and the following
U.S. Pat. Nos. 5,334,310; 5,453,185; 5,522,994 (to
Frechet). Monolith or
rod columns are commercially available from Merck & Co
(Darmstadt, Germany).